Statistical Bulletin
METROPOLITAN LIFE INSURANCE COMPANY
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Cancer in Later Life

BOTH the incidence and the mortality rates from cancer (malignant neoplasms) increase steadily during adult life and reach their maximum at the oldest ages. One of the characteristics of the disease at ages 65 and over is the considerably higher morbidity and mortality among men than among women. Another characteristic is the change in relative frequency of malignancies of certain sites. For example, among men cancer of the genital organs accounts for an increasing proportion of all cancers with advance in age, whereas among females the proportion decreases.

In 1956, there were more than 126,000 cancer deaths in the United States among persons at ages 65 and over. Outranked as a cause of death only by heart disease and cerebral hemorrhage, cancer accounted for nearly 15 percent of the total mortality in this age group. These later ages account for somewhat more than half of the cancer deaths at all ages combined.

It is estimated that at present about 365,000 new cases of cancer occur annually at ages 65 and over. This current figure for the country as a whole is based upon data from the cancer morbidity survey made in 10 major cities during 1947-48.* It is also estimated that one in every four people reaching age 65 will eventually develop cancer. At the older ages, the incidence rate of the disease is about one third higher for men than for women. In the course of a year, there is one new case of cancer among every 65 white men at ages 65-69; the proportion is 1 in 33 at ages 85 and over. Among white women the corresponding rise is from one case in every 80 to one in every 44.

Contrasting trends are observed in the cancer mortality for older men and women during the decade 1944-54; among white men the death rate increased somewhat while among white women it declined. The rise in mortality for men reflects primarily the upward trend in the death rate ascribed to respiratory cancer, genito-urinary cancers, and leukemia. Among elderly women, the total cancer mor-

*Dorn, Harold F., and Cutler, Sidney J., *Morbidity from Cancer in the United States, Part I.* Public Health Monograph No. 29, Public Health Service, 1955.

MORTALITY FROM MALIGNANT NEOPLASMS OF SPECIFIED SITES

White Persons, by Sex, Ages 65 Years and Over; United States, 1954

SITE	Death Rates per 100,000						Percent of Total					
	Ages 65-74		Ages 75-84		Ages 85 and over		Ages 65-74		Ages 75-84		Ages 85 and over	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
Malignant Neoplasms—Total	861.9	609.9	1,421.9	1,017.0	1,728.5	1,291.3	100.0	100.0	100.0	100.0	100.0	100.0
Buccal cavity and pharynx	30.1	6.6	47.1	12.5	74.3	20.5	3.5	1.1	3.3	1.2	4.3	1.6
Digestive organs and peritoneum	363.9	250.1	609.6	477.0	690.5	649.3	42.2	41.0	42.9	46.9	39.9	50.3
Stomach	113.8	53.3	201.0	119.7	233.1	166.3	13.2	8.7	14.1	11.8	13.5	12.9
Intestine, including duodenum	87.7	88.5	166.6	173.6	183.8	246.8	10.2	14.5	11.7	17.1	10.6	19.1
Rectum	48.7	27.9	77.9	51.6	95.1	73.3	5.7	4.6	5.5	5.1	5.5	5.7
Biliary passages and liver	34.4	38.5	50.5	61.6	52.8	74.5	4.0	6.3	3.6	6.1	3.1	5.8
Pancreas	49.6	31.4	70.2	50.7	76.8	61.4	5.8	5.1	4.9	5.0	4.4	4.8
Respiratory system	163.9	26.7	136.7	42.8	98.9	38.9	19.0	4.4	9.6	4.2	5.7	3.0
Lung and bronchus	146.9	23.7	115.0	36.6	76.4	32.2	17.0	3.9	8.1	3.6	4.4	2.5
Breast	—	97.2	—	143.3	—	197.3	—	15.9	—	14.1	—	15.3
Female genital organs	—	103.0	—	134.5	—	125.2	—	16.9	—	13.2	—	9.7
Uterus	—	64.8	—	87.2	—	89.6	—	10.6	—	8.6	—	6.9
Ovary	—	33.8	—	37.0	—	23.3	—	5.5	—	3.6	—	1.8
Male genital organs	103.7	—	312.2	—	473.9	—	12.0	—	22.0	—	27.4	—
Prostate	100.9	—	306.0	—	460.2	—	11.7	—	21.5	—	26.6	—
Urinary organs	56.1	24.3	99.2	49.2	120.1	60.9	6.5	4.0	7.0	4.8	6.9	4.7
Bladder	39.2	14.7	78.3	34.9	106.3	49.0	4.5	2.4	5.5	3.4	6.1	3.8
Skin	11.7	5.4	27.7	16.1	57.4	44.8	1.4	.9	1.9	1.6	3.3	3.5
Lymphatic and blood-forming tissues	64.6	43.5	86.5	55.1	72.5	43.8	7.5	7.1	6.1	5.4	4.2	3.4
Leukemia and aleukemia	33.3	20.5	52.1	29.9	49.3	23.8	3.8	3.4	3.7	2.9	2.9	1.8

Source of basic data: National Office of Vital Statistics, *Vital Statistics of the United States, 1954*

tality decreased, even though respiratory cancer and leukemia, as among the men, showed increased death rates. The reduction resulted mainly from the downward trend in genital cancers. In both sexes the mortality recorded from cancers of the stomach and liver declined sharply, but at least part of this decrease reflects greater accuracy in determining the primary sites of malignant tumors.

There is some indication from the mortality experience among women at ages 65-74 insured under Industrial policies in the Metropolitan Life Insurance Company that the improvement in cancer mortality among elderly women has been greater in the urban than in the rural population.

As the table on page 2 shows, the cancer death rates at ages 65 and over are higher among men than among women for all major sites except the breast, intestines, and the biliary passages and liver. Particularly marked is the sex difference in the mortality from respiratory cancer, the death rate for men being more than six times that for women at ages 65-74, which are the ages of peak mortality for males. Among men in this age group, cancer of the respiratory system, outranking every other site, accounts for nearly one fifth of the total mortality from malignant neoplasms. The prostate is the leading site of cancer among men at ages 75 and over, taking a considerably larger death toll than cancer of the stomach, which ranks second.

Among older women the reproductive organs, breast, and intestines are numerically the most important sites of fatal cancer. The relative frequency of intestinal cancer in women rises with advance in age, with the result that this site accounts for one fifth of the total cancer mortality at ages 85 and over. Intestinal cancer mortality among women is 1½ times that for men at these late ages. In each sex, the death rate from cancer of the skin rises rapidly after age 65. However, the skin is not a major site of fatal cancer at any age, even though it is one of the most common sites for the occurrence of cancer.

Cancer ranks among the foremost problems of geriatric medicine. Even at the advanced ages, early detection of the disease can in many cases lead to successful treatment or at least to substantial relief. Educational measures suitable to persons in later life should be devised to make these people aware of the danger signals that may mean the presence of cancer. Periodic health examinations of the elderly are a practical means of early detection. There is no room for complacency or neglect on the assumption that little can be done against the disease at the advanced ages.

Gains in Longevity Since 1900

CONTINUED progress in the control of disease has greatly extended the average length of life in the United States. Under mortality conditions prevailing around 1900, the expectation of life at birth was not quite 50 years. By 1930, the figure had risen to about 60 years; in 1955, the latest available, it was 69.5 years. Thus, about 20 years have been added to the expected lifetime since the turn of the century. In 1955, as in earlier years, white females had the best record for longevity. Their expectation of life at birth was 73.6 years, compared with 67.3 years for white males; the corresponding figures for the nonwhite population were 65.9 years and 61.2 years, respectively.

The increases in expectation of life have been largest in infancy and childhood, but notable gains have also been made at the adult ages. As Table 1 indicates, since 1900-02 the expectation of life at age 25 has increased 7 years among white men and 11 years among white women; at age 45 the corresponding gains have been 3 years and 6½ years.

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TABLE 1—EXPECTATION OF LIFE AND MORTALITY
White Population by Sex; United States, 1900-1955

Age	White Male				White Female			
	1900-02	1929-31	1949-51	1955	1900-02	1929-31	1949-51	1955
	Expectation of Life in Years							
0	48.2	59.1	66.3	67.3	51.1	62.7	72.0	73.6
15	46.2	50.4	54.2	54.8	47.8	53.0	59.4	60.7
25	38.5	41.8	44.9	45.6	40.1	44.3	49.8	51.0
45	24.2	25.3	26.9	27.3	25.5	27.4	31.1	32.1
65	11.5	11.8	12.8	12.9	12.2	12.8	15.0	15.5
75	6.8	7.0	7.8	8.0	7.3	7.6	8.9	9.2
	Annual Mortality Rate per 1,000							
0	133.5	62.3	30.7	26.8	110.6	49.6	23.6	20.4
15	3.3	2.1	1.0	1.0	3.4	1.6	.5	.4
25	7.0	3.7	1.7	1.7	6.8	3.4	.9	.7
45	12.6	9.3	6.4	5.7	10.6	7.0	3.7	3.1
65	41.7	38.6	34.5	34.6	36.4	31.3	20.6	19.7
75	88.4	85.3	75.0	72.2	80.4	74.6	56.5	50.6

Source: Various reports by the National Office of Vital Statistics. The 1955 mortality rates were interpolated for single ages in the Statistical Bureau of the Metropolitan Life Insurance Company.

TABLE 2—CHANCES OF SURVIVAL DURING VARIOUS PERIODS OF LIFE
White Population by Sex; United States, 1900-1955

Age	White Male				White Female			
	1900-02	1929-31	1949-51	1955	1900-02	1929-31	1949-51	1955
	Chances per 1,000 of Surviving from Birth to Age 20							
Birth	764	889	951	957	790	909	965	970
	Chances per 1,000 of Surviving from Specified Age to Age 65							
20	514	596	668	686	555	665	796	824
25	531	606	674	692	572	676	799	827
30	551	618	680	698	593	688	803	830
35	575	632	687	704	617	701	808	834
40	604	650	697	713	645	718	816	841
45	639	676	714	729	677	740	828	851
50	685	713	742	755	718	770	847	867
55	748	768	789	799	775	814	875	892
	Chances per 1,000 of Surviving from Age 65 to Age 75							
65	545	556	600	605	579	612	709	733

In recent decades, females have enjoyed a lower mortality than males at every period of life. In fact, the death rate among white females is now less than 2 per 1,000 in the age range 1 through 39 years, and remains under 10 per 1,000 through age 58. For white males, the mortality during childhood and early adult life has also declined to very low levels. Nevertheless, over much of the life span the death rate among males is more than 1½ times that for females. Around the age of majority, when the sex difference in mortality is at a maximum, the ratio is nearly 3 to 1.

Coincident with the reductions in mortality during the present century, the chances of survival from birth to the adult ages have increased markedly. According to mortality conditions in 1900-02, 24 percent of newborn white males and 21 percent of the white females failed to survive to their 20th birthday; currently, only 3 or 4 percent are likely to die before that age.

The success achieved in preventing premature death has also greatly improved the outlook for

survival through the productive years of life. As may be seen in Table 2, the chances that a white man will survive from age 20 to age 65 have increased from 514 per 1,000 in 1900-02 to 686 per 1,000 in 1955. Although the gains decrease progressively with advance in age, more than three fourths of those who now attain age 50 can expect to reach normal retirement age.

The prospects of survival for females have improved so much that women now have better than four chances in five of living to see all their children reach maturity. In fact, survival to age 65 is more likely for women at age 20 than for men who have passed their 55th birthday.

The expected lifetime beyond age 65 has also been extended somewhat since 1900. For white men, the chances of living an additional 10 years have increased from 545 per 1,000 to 605 per 1,000. Moreover, the expectation of life for men who attain age 75 is now fully eight years; for white women it is 9.2 years.

Hurricanes—Past and Present

AUDREY, the first hurricane of 1957, took a heavier toll of life than any other natural disaster in nearly two decades. Striking in late June, the hurricane swept across Louisiana and eastern Texas and then veered northward, leaving in its wake approximately 350 known dead and a considerable number of persons still reported as missing. The loss of life from the wind and accompanying flood was heavily concentrated in the fishing village of Cameron, La.

It is comparatively rare for a severe hurricane to strike our country during June. The records of the Weather Bureau show only two such storms in the three decades from 1926 through 1956. Both these June hurricanes, like Audrey, concentrated their fury on the Gulf States, but were responsible for a much smaller loss of life. One of the storms occurred in 1954, taking 17 lives in Texas; the other, in 1934, accounted for seven deaths in Louisiana and Mississippi.

Of the 49 hurricanes causing loss of life in the United States during the period 1926-56, 37 occurred in August or September—the number being almost equally divided between the two months. Six storms struck in October; three in July; two, as already noted, in June; and only one in November. While September witnessed two out of every five hurricanes during the period under review, the month accounted for more than four fifths of the hurricane deaths.

The annual death toll from hurricanes shows wide fluctuations. To illustrate from the experience of the past few years: in 1951, there was not a single fatality from this cause in the United States; in each

of the next two years there were only two deaths, whereas in 1954 and again in 1955 the loss of life exceeded 200; in 1956, the year before Audrey, the toll was down to 15. As may be seen in the accompanying table, the number of deaths in the six-year period 1951-56 was more than twice that in the preceding decade. However, the toll in the recent period was appreciably less than the number killed in the New England hurricane of 1938, which cost 657 lives,

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NUMBER OF DEATHS FROM HURRICANES, BY STATE, 1926-56

Area	1926-56	1951-56	1946-50	1941-45	1936-40	1931-35	1926-30
United States—Total	4,042	437	81	107	715	574	2,128
New England	790*	163*	12	30	585	—	—
Maine	12	12	—	—	—	—	—
New Hampshire	17	3	—	—	14	—	—
Vermont	9	2	—	—	7	—	—
Massachusetts	177	40	12	26	99	—	—
Rhode Island	397	17	—	—	380	—	—
Connecticut	160	71	—	4	85	—	—
Middle Atlantic	286	172	—	15	72	27	—
New York	104	27	—	6	69	2	—
New Jersey	47	25	—	9	3	10	—
Pennsylvania	135	120	—	—	—	15	—
South Atlantic	2,760†	77‡	31	28	57	464	2,103¶
Delaware	2	—	—	—	—	2	—
Maryland	35	14	—	—	—	21	—
District of Columbia	3	3	—	—	—	—	—
Virginia	37	17	—	—	9	11	—
North Carolina	74	27	1	1	26	15	4
South Carolina	25	3	1	—	20	1	—
Georgia	4	—	2	—	2	—	—
Florida	2,563	7	27	27	—	414	2,088
South Central	206	25	38	34	1	83	25
Alabama	7	4	1	—	—	2	—
Mississippi	26	—	22	—	—	4	—
Louisiana	45	4	12	—	1	3	25
Texas	128	17	3	34	—	74	—

*Includes 18 deaths in New England for which the State is unknown.
†Includes 17 deaths in the South Atlantic region which cannot be allocated to individual States.
‡Includes 6 deaths in Delaware and Maryland which cannot be allocated to individual States.
¶Includes 11 deaths in North Carolina, South Carolina, Virginia, and Georgia which cannot be allocated to individual States.

Source: Data compiled by the Statistical Bureau of the Metropolitan Life Insurance Company from reports of the United States Weather Bureau and other sources.

and was less than one fourth the loss sustained in the Florida hurricane of 1928 (1,836 lives).

The Atlantic and the Gulf States are the major targets of the hurricanes which strike our country. Within this area there has been a shift, however, in the States bearing the brunt of the storms. In the decade 1926-35, the loss of life from hurricanes was almost entirely concentrated in the Gulf States. Florida was battered in 1926, 1928, and 1935—all of them were September hurricanes—with a total loss of about 2,500 lives; this total comprises more than three fifths of all the hurricane deaths in the United States in the past three decades.

In contrast, Weather Bureau reports show no hurricane deaths whatever in the New England States in the decade 1926-35; the same is true for the Middle Atlantic States during 1926-30. In recent years, however, the Northeast has suffered the heaviest losses. The New England and the Middle Atlantic regions accounted for more than three fourths of the hurricane deaths in the country during 1951-56. In August of 1955, a hurricane and heavy flash floods caused 184 deaths in the Northeast, mainly Pennsylvania and Connecticut. In October 1954, a severe hurricane killed a number of people in the South but caused an even larger toll in the North Atlantic States, for the most part in New York and Pennsylvania. Two other destructive storms in that year, one in August and another in September, hit hard at the New England and the Long Island, N. Y. areas.

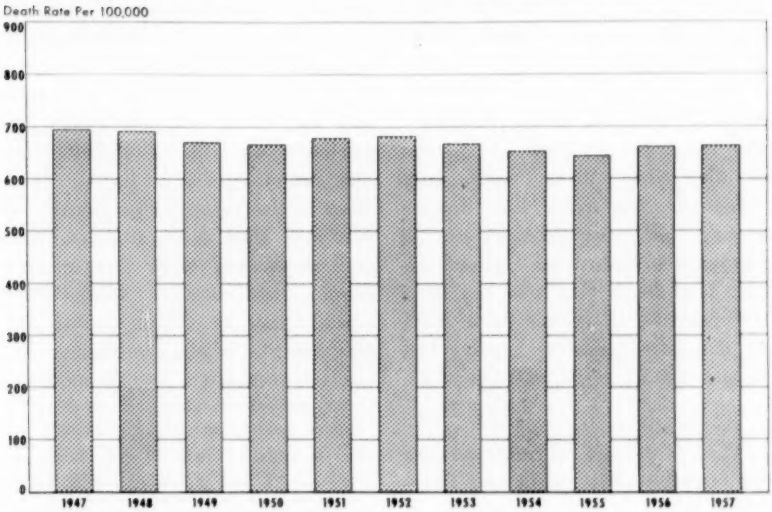
The death toll from hurricanes would be reduced if people, when warned of approaching danger, would seek suitable shelter or, whenever necessary, would evacuate hazardous areas. Such precautionary measures are very frequently facilitated by the efforts of the Red Cross and other organizations which, in addition, lessen the impact of the disaster by ministering to the immediate needs of the storm victims.

Mortality Continues to Be Favorable

THE death rate among the Industrial policyholders of the Metropolitan Life Insurance Company in the first half of 1957 was about the same as that recorded a year ago and about 3 percent higher than the all-time low established in the first six months of 1955. As the accompanying chart and the table on page 11 show, the death rate for the January-June period of 1957 was 663 per 100,000, compared with 662 a year ago and with 644 in the like period of 1955.

The cardiovascular-renal diseases and cancer (malignant neoplasms) both record somewhat higher death rates this year than last. For the cardiovascular-renal conditions, the rate increased about 2 percent—

DEATH RATES PER 100,000 FROM ALL CAUSES
Total Persons, All Ages. Industrial Policyholders
Metropolitan Life Insurance Company. First Six Months, 1947 to 1957



from 354.5 per 100,000 in the first half of 1956 to 360.9 in the comparable period of the current year. The corresponding rise in the cancer mortality rate was from 132.9 to 138.4 per 100,000, or about 4 percent, reflecting increases in malignancies of the digestive and of the respiratory system. In contrast, the death rate from diabetes in this insurance experience decreased 8 percent.

Thus far, the record for pneumonia and influenza has been exceptionally favorable. The mortality rate from these diseases through June was 16.3 per 100,000 policyholders, or 12 percent below the rate a year ago. It is a matter of conjecture as to whether the influenza epidemic which is spreading from the Far East to other areas will become widespread in the United States. Some sporadic outbreaks have already occurred in our country but they have been confined to small areas.

Progress continues to be made in the control of tuberculosis. The disease recorded a 10 percent reduction in mortality since last year, the rate among the insured reaching an all-time minimum of 7.2 per 100,000 in the first six months of 1957; this is less than half the death rate of only five years earlier. The communicable diseases of childhood—measles, scarlet fever,

whooping cough, and diphtheria—likewise established a new low this year. Their combined death rate was down to 0.2 per 100,000, compared with 0.4 in the January-June period of 1956.

The mortality from acute poliomyelitis has been at an extremely low level. In the first six months of the year there were only three deaths from the disease among the many millions of the Company's Industrial policyholders. The death rate was less than 0.05 per 100,000, compared with 0.1 in the corresponding period last year and 0.2 per 100,000 two years ago. Through June 29th of the current year, 1,403 cases of poliomyelitis were reported in the general population of the United States, about half the total reported in the first half of 1956.

The death rate from accidents (all forms) in this insurance experience was somewhat lower in the January-June period of 1957 than in the comparable months of last year. Part of the improvement reflects the reduction in mortality from motor vehicle accidents. The suicide rate remained practically unchanged, while homicides increased somewhat in frequency.

The Statistical Bureau of the Metropolitan Life Insurance Company keeps a current record of catastrophes—accidents in which five or more persons are killed. The facts for the general population of the United States, compiled from a variety of sources, are here briefly summarized.

In the first six months of 1957 catastrophic accidents took approximately 1,200 lives, a higher toll than in the like period of any year since 1947. This unfavorable record reflects in large measure the relatively heavy loss of life caused by hurricane Audrey, which is discussed elsewhere in this issue of the STATISTICAL BULLETIN. Other factors contributing to the higher catastrophe toll this year than last are increases in the mortality from motor vehicle accidents in which five or more persons were killed and a greater loss of life in conflagrations. On the other hand, fatalities in both civil and military aviation are markedly lower so far this year than in the first half of 1956.

Through June, there were four disasters, in addition to the hurricane, which took more than 25 lives. The greatest of these was the fire which destroyed a home for the aged at Warrenton, Mo., on February 17th, causing 72 deaths. Two of the four were natural disasters. One was a tornado on May 20th which took 39 lives in the Kansas City area; the other was a blizzard which swept through the Great Plains States in late March, accounting for 29 deaths. A gas explosion in a coal mine near Bishop, Va., on February 4th—the earliest disaster of the year—was responsible for 37 fatalities.

MORTALITY FROM SELECTED CAUSES

Industrial Policyholders, Metropolitan Life Insurance Company

June 1957

Cause of Death	Annual Rate per 100,000 Policyholders*				
	June		Year to Date		
	1957†	1956	1957†	1956	1955
All Causes	628.2	621.5	662.8	661.9	644.4
Tuberculosis (all forms)	6.6	7.9	7.2	8.0	8.2
Communicable diseases of childhood	.1	.1	.2	.4	.3
Acute poliomyelitis	—	—	‡	.1	.2
Malignant neoplasms	137.7	135.8	138.4	132.9	129.4
Digestive system	48.6	47.2	48.6	45.5	45.1
Respiratory system	17.9	18.4	19.2	17.9	16.7
Diabetes mellitus	15.0	13.5	14.9	16.2	15.6
Diseases of the cardiovascular-renal system	338.5	318.2	360.9	354.5	344.9
Vascular lesions, central nervous system	64.1	63.1	68.4	69.6	66.9
Diseases of heart	250.0	230.8	265.6	259.0	251.7
Chronic rheumatic heart disease	9.8	10.5	11.8	12.3	13.0
Arteriosclerotic and degenerative heart disease	198.6	177.6	207.2	201.3	193.8
Diseases of coronary arteries	115.3	104.6	117.9	115.1	111.9
Hypertension with heart disease	32.5	34.9	35.8	36.9	36.3
Other diseases of heart	9.1	7.8	10.7	8.5	8.6
Nephritis and nephrosis	7.5	8.5	8.4	8.3	9.3
Pneumonia and influenza	11.9	14.7	16.3	18.6	16.8
Complications of pregnancy, childbirth	.9	1.0	.9	1.0	.9
Suicide	5.3	7.0	5.8	5.9	6.4
Homicide	2.7	2.2	2.7	2.2	2.2
Accidents—total	37.0	38.3	34.0	36.2	33.6
Motor vehicle	15.5	15.6	14.8	15.3	13.8
All other causes	72.5	82.8	81.5	85.8	85.9

*The death rates prior to March 1956 relate to persons insured under Industrial premium-paying policies and persons with Ordinary Monthly Premium Policies for Less Than $1,000; beginning with March 1956, included also are persons with Debit Book Ordinary policies for $2,000 or less.
†The death rates for 1957 are provisional.
‡Less than 0.05.

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MORTALITY FROM ALL CAUSES

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